WHAT IS CLAIMED IS:

1. An apparatus for facilitating percutaneous placement of surgical instruments into the spine, adapted for use with a surgical navigation system employing an energy-detecting array in communication with a surgical navigation computer to track positions of instruments in three dimensional space relative to a known reference point, said apparatus comprising:

a connector adapted to be rigidly attached to a portion of the spine;

at least one central post connected to said connector;

a position identification structure rigidly and removably connected to said central post at a predetermined position on said central post and adapted to be reconnected at the same said predetermined position, said identification structure being further adapted to allow a patient to be scanned with the structure connected to the central post, said structure including an assembly for communicating positioning information with respect to said assembly to the energy detecting array and surgical navigation computer; and

a connector assembly for said reconnecting of said structure substantially to said predetermined position on said central post.

2. The apparatus of claim 1, wherein the connector is a clamp having teeth adapted for biting into a spinous process.

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3. The apparatus of claim 1, wherein the connector includes an elongated fixture with a central axis and a threaded end adapted to be inserted into the spinous process and a substantially rigid wire connected to the fixture with the central axis of the wire adapted to be implanted into the spinous process at an angle to elongated fixture to prevent the fixture from rotating.

4. The apparatus of claim 1, wherein said assembly for communication positioning information is a substantially H-shaped frame.

5. The apparatus of claim 1, wherein said assembly for communicating positioning information is a substantially W-shaped frame.

6. The apparatus of claim 1, wherein said assembly for communicating positioning information is a substantially U-shaped frame.

7. The apparatus of claim 1, wherein said assembly for communicating positioning information is a substantially X-shaped frame.

8. The apparatus of claim 1, wherein said assembly for communicating positioning information comprises:

a fiducial array for registering the location of a spinal element with rigidly connected fiducials; and

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a reference arc for signaling the position of a spinal element, said arc further comprising rigidly connected emitters.

9. The apparatus of claim 1, wherein said reference point is on the spine.

10. A method for monitoring the location of an instrument, surgical implant and various portions of the body, to be operated on, using a surgical navigation system with a surgical navigation computer and a digitizer array for monitoring the location of instruments in three-dimensional space relative to a known reference point, said method comprising the steps of:

attaching a fixture having a central post to a portion of the spine;

removably attaching an identification structure including a fiducial array and a reference arc to said central post;

providing a scanned three-dimensional image of a patient including said fiducial array rigidly attached to said central post of said fixture, said fixture being rigidly attached to the patient to identify the position of said fixture and said fiducial array on the scanned image;

using an image-guided system, by touching an image guided surgical pointer to one or more fiducials on the fiducial array to register the location of a spinal element fixed to said array; and

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emitting a signal from said reference arc to indicate changes in position of the spinal element during a surgical procedure.

11. The method of claim 10, further comprising:

performing a surgical procedure percutaneously on a patient using an instrument and implant locatable relative to the spinal element and said structure in known positions identified in the surgical navigation system.

12. The method of claim 10, further comprising:

inserting a threaded fixture having a substantially rigid wire into a spinal element; and

touching an image guided pointer to said threaded fixture and wire to positively register the location of said fixture and wire in a surgical navigation computer.

13. The method of claim 10, further comprising:

implanting imageable devices into spinal elements to identify the location of the spinal elements in the surgical navigation computer.

14. The method of claim 10, further comprising:

implanting imageable devices into a plurality of spinal elements; and

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manipulating the patient's spine by viewing the location of the implanted devices, as communicated to the surgical navigation computer by touching an instrument with a tracking emitter to said implanted imageable devices to align the actual position of the spinal elements with the previously scanned image.

15. The method of claim 10 further comprising:

percutaneously implanting screws into spinal elements; and

locating the position of said screws using image guided surgical navigation techniques.

16. The method of claim 15 further comprising:

manipulating the orientation of the screw heads percutaneously using a head-positioning probe for communicating location containing an emitter, said probe communicating to the surgical navigation computer the orientation of the screw heads; and

using a head positioning tool for manipulating implants having an end portion that mates with the heads of the screws and rotating the screws to receive a connecting implant.

17. The method of claim 16 further comprising:

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tracking the location and position of the connecting implant by means of an instrument affixed to the implant having emitters capable of communicating orientation and location to the surgical navigation computer.

18. A system for use in performing the percutaneous placement of surgical implants and instruments into the spine using image guided surgery and a surgical navigation computer and energy detecting array, said system comprising:

means for attaching a fixture to a portion of the spine;

means for communicating position information to the surgical navigation computer and energy detecting array said means rigidly and removably connected to said means for attaching a fixture;

means for providing location information of said spinal portion to the surgical navigation system adapted to be connected to spinal elements;

means for indicating screw-head position said means electrically connected to the surgical navigation system and adapted to mate with the head of a screw implanted in one or more of said spinal elements.

19. The system of claim 18 further comprising:

an elongated implant adapted to be inserted into said implanted screws;

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means for indicating the position of said elongated implant electrically connected to the surgical navigation system and adapted to mate with the elongated implant.

20. The system of claim 18, wherein said implanted screws have heads and the elongated implant is a rod adapted to be guided through holes in said implanted screw heads.

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